Form 3160-3
(September 2001)

RECEIVED
FEB 22 2010
Bureau of Land Management
Farmington Field Office

FORM APPROVED
OMB No 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work ☒ DRILL ☐ REENTER	5. Lease Serial No: NMSF-078764
	6. If Indian, Allottee or Tribe Name:
	7. If Unit or CA Agreement, Name and No: Rosa Unit
1b. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other X Single Zone Multiple Zone	8 Lease Name and Well No.: Rosa Unit #635C
2 Name of Operator: Williams Production Company, LLC	9. API Well No: 30-039-30938
3a Address: P O Box 640 Aztec, NM 87410	3b Phone No. *(include area code)*: (505) 634-4208
	10. Field and Pool, or Exploratory: Basin Mancos
4 Location of Well *(Report location clearly and in accordance with any State requirements *)* At surface: 1890' FNL & 460' FWL, Section 21, T31N., R5W At proposed prod. zone: 1976' FNL & 20' FWL, Section 20 T31N R5W	11. Sec., T., R., M., or Blk and Survey or Area: B:20-31N,5W S Section 21, 31N, 5W
14 Distance in miles and direction from nearest town or post office*: approximately 30 miles northeast of Blanco, New Mexico	12 County or Parish: Rio Arriba; 13. State: NM
15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 460'	16. No of Acres in lease: 2,507.300; 17. Spacing Unit dedicated to this well: 320 0 – (N/2)
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft: 240' Rosa 263A	19. Proposed Depth: 7333'; 20. BLM/BIA Bond No. on file: UT0899
21. Elevations (Show whether DF, KDB, RT, GL, etc.): 6,418' GR	22. Approximate date work will start*: April 1, 2010; 23. Estimated duration: 45 days

24. Attachments

RCVD APR 8 '10
OIL CONS. DIV.

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

1. Well plat certified by a registered surveyor. CONFIDENTIAL
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification. DIST. 3
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature: Larry Higgins	Name *(Printed/Typed)*: Larry Higgins	Date: 2-22-10
Title: Drilling COM		
Approved by *(Signature)*: Matthew Kellogg	Name *(Printed/Typed)*	Date: 4/6/2010
Title: AFM	Office: FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**(Instructions on reverse)*

Williams Production Company, LLC, proposes to develop the Basin Mancos formation at the above described location in accordance with the attached drilling and surface use plans.

The well pad surface is under jurisdiction of the Bureau of Land Management, Farmington Field Office (BLM/FFO).

This location has been archaeologically surveyed by La Plata Archaeological Consultants. Copies of their report have been submitted directly to the BLM.

No new access road will be required for this proposed well

This APD is also serving as an application to obtain a pipeline right-of-way. An associated pipeline tie of 379.6 feet would be required for this well.

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

HOLD C104 FOR Cl Status tests Sec 85C

NMOCD
Hold C104
for Directional Survey
and "As Drilled" plat

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

APR 13 2010

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

District I
1625 N French Dr., Hobbs, NM 88240

District II
1301 W. Grand Avenue, Artesia, NM 88210

District III
1000 Rio Brazos Rd, Aztec, NM 87410

District IV
1220 S St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr
Santa Fe, NM 87505

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FEB 22 2010
Bureau of Land Management
Farmington Field Office

Form C-102
Revised October 12, 2005
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30938	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
17033	ROSA UNIT	635C

[7] OGRID No.	[8] Operator Name	[9] Elevation
120782	WILLIAMS PRODUCTION COMPANY	6418'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	21	31N	5W		1890	NORTH	460	WEST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	20	31N	5W		1976	NORTH	20	WEST	RIO ARRIBA

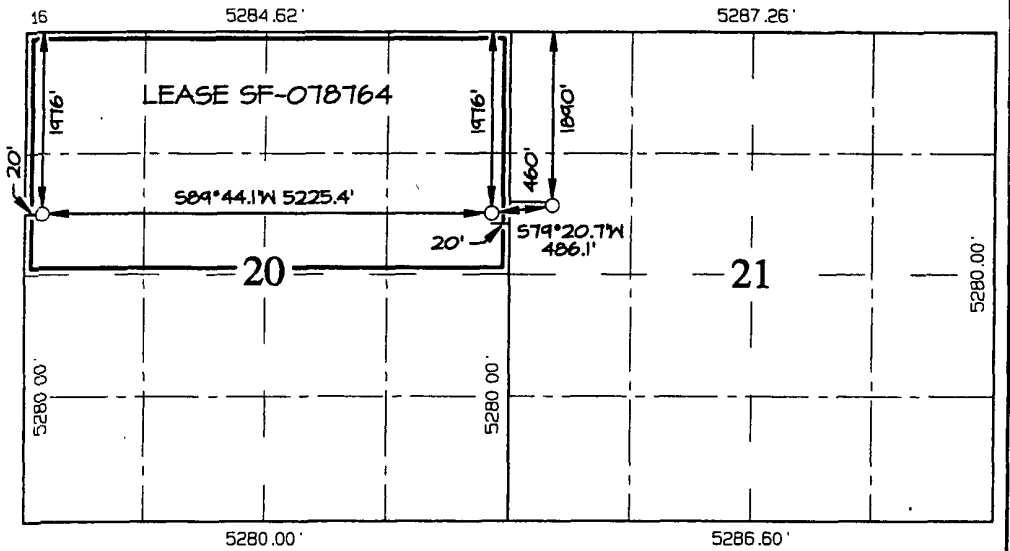
[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320.0 Acres - (N/2)			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

END-OF-LATERAL
1976' FNL 20' FWL
SECTION 20, T31N, R5W
LAT: 36.88687 °N
LONG: 107.39463 °W
DATUM: NAD1983

POINT-OF-ENTRY
1976' FNL 20' FEL
SECTION 20, T31N, R5W
LAT: 36.88687 °N
LONG: 107.37677 °W
DATUM : NAD1983

SURFACE LOCATION
1890' FNL 460' FWL
SECTION 21, T31N, R5W
LAT: 36.88711 °N
LONG: 107.37513 °W
DATUM : NAD1983



THE HORIZONTAL LATERAL REPRESENTED ON THIS PLAT CORRESPONDS TO THE OLIVE SEGMENT WHICH VARIES IN ELEVATION FROM 7333.0' AT THE POINT-OF-ENTRY TO 7237.0' AT THE END-OF-LATERAL.

[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Larry Higgins 2-22-10
Signature Date

Larry Higgins
Printed Name

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Survey Date: JANUARY 18, 2010

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

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Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAR 01 2010

Bureau of Land Management
Farmington Field Office

FORM APPROVED
OMB No 1004-0137
Expires. March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE – *Other instructions on page 2.*

1 Type of Well ☐ Oil Well ☒ Gas Well ☐ Other	5. Lease Serial No NMSF 0078764
	6 If Indian, Allottee or Tribe Name
	7 If Unit of CA/Agreement, Name and/or No. Rosa Unit
	8. Well Name and No. Rosa Unit #635C
2 Name of Operator Williams Production Company, LLC	9 API Well No 30-039-30938
3a Address PO Box 640 Aztec, NM 87410 3b. Phone No. *(include area code)* 505-634-4208	10. Field and Pool or Exploratory Area Basin Mancos
4. Location of Well *(Footage, Sec., T,R.,M., or Survey Description)* 1890' FNL & 480' FWL, sec 21, T31N, R5W	11. Country or Parish, State Rio Arriba

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other _____
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	_____
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	_____

13 Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Williams Production Company is submitting the attached operation plans and direction plans to reflect the correct formation tops that were incorrectly submitted on the APD.

CONFIDENTIAL

RCVD APR 8 '10
OIL CONS. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Larry Higgins

Title Permits Supervisor

Signature Larry Higgins

Date 3-1-10

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title AFM

Date 4/6/2010

Conditions of approval, if any, are attached Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office FFO

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Instructions on page 2)

NMOCD

DRILLING PROGRAM

Operator: Williams Production Company LLC.

Well: Rosa Unit 635C

Surface: 1890' FNL & 460' FWL, Sec. 21, T31N, R5W,N.M.P.M.

Bottom Hole: 1976' FNL & 20' FWL, Sec. 20, T31N, R5W, N.M.P.M.

Rio Arriba County, New Mexico

ONSHORE OIL & GAS ORDER NO. 1
Approval of Operations on Onshore Federal and Indian Oil and Gas Leases

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill. The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Approval of this application does not warrant or certify that the applicant holds legal of equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

1. FORMATION TOPS:

The estimated tops of important geologic markers are as follows:
The referenced surface elevation is 6418' ungraded, 6438 KBm est.

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,548	2,548	Menefee	5,538	5,555
Kirtland	2,663	2,663	Point Lookout	5,753	5,819
Fruitland	3,068	3,068	Mancos	6,063	6,180
Pictured Cliffs	3,288	3,288	Top of Olive	7,237	7,571
Lewis	3,578	3,578	Bottom of Olive	7,333	8,021
Cliff House	5,493	5,505	**TD**	**7,237**	**13,248**

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS:

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth TVD
Gas	Fruitland Coal	3068
Gas	Cliff House	5493
Gas	Point Lookout	5753

All shows of fresh water and minerals will be reported and protected.

3. BOPE EQUIPMENT:

Williams Production Company, LLC. minimum specifications for pressure control equipment are as follows:

The well control equipment will be a Class 3 – 5000 # W.P. with 2- Hydraulic Rams at 5000 # rating and 1- Annular at 3000 # rating. The choke manifold is a 2" 5000 # rating flange valves system & two (2) 2" valves per wing, one wing with one (1) Manual adjustable choke, second (2) wing is a fixed choke 5000 # rating, third (3) wing is a gate. Choke/ Kill outlets between rams or drilling spool 2" flanged gate, choke valves one(1) manual and one(1) hydraulic 2" flange 5000 # rating, the kill valves with two(2) manual 2" flange 5000# rating gate valves, and secondary kill with two(2) manual gate valves 2" flange 5000# rating with pressure gauge. See attached schematic of BOP stack and choke manifold system.

Ram type preventers and associated equipment shall be tested with a test plug to approved stack working pressure of up to 70 percent of internal yield pressure of casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off pressure is acceptable. Valve on casing head below test plug shall be open during test of BOPE stack.

Annular type preventers shall be tested with a test plug to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

As a minimum, the above test shall be performed:

a. when initially installed
b. whenever any seal subject to test is broken
c. following related repairs
d. at 30-day intervals

Pressure tests are required before drilling out from under all casing strings set and cemented in place. Blowout preventer controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.

Preventers will be inspected and operated at least daily to insure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs. All BOPE pressure tests must be recorded on the daily drilling report.

NOTIFY THE FIELD OFFICE PETROLEUM ENGINEER AT LEAST 24 HOURS IN ADVANCE OF PRESSURE TESTS.

Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.

When testing the kill line valve(s) the check valve shall be held open of the ball removed.

Annular preventers shall be functionally operated at least weekly.

Pipe and blind rams shall be activated each trip; however, this function need not be performed more than once a day.

A BOPE pit level drill shall be conducted weekly for each drilling crew.

Pressure tests shall apply to all related well control equipment.

All of the above described tests and/or drills shall be recorded in the drilling log. Test charts, with individual test results identified, shall be maintained on location while drilling and shall be made available to a BLM representative upon request. A test plug will be used on all pressure testing BOPE.

The choke manifold, BOPE extension rods and hand wheels will be located outside the substructure. The hydraulic BOPE closing unit will be located at least 100 ft from the well head, with the remote control unit on the rig floor. The casing head and BOPE will be flanged 13-3/8" 5000 psi. Kill line will be 2" i.d. with burst pressure rating of at least 5,000 psi. These items will be pressure tested concurrently with BOPE's. The BOPE will be tested when the stack is first installed on the well. It will also be tested at each casing shoe and at least every 30 days. BOPE and choke manifold sizes will be in accordance with API-RP-53 as per the attached. See attached schematic of choke manifold.

a. The size and rating of the BOPE stack is shown on the attached diagram.
b. A choke line and a kill line are to be properly installed. The kill line is not to be used as a fill-up line.
c. The accumulator system shall have a pressure capacity to provide for repeated operation of hydraulic preventers.
d. Drill string safety valve(s), to fit all tools in the drill string, are to be maintained on the rig floor while drilling operations are in progress.

4. CASING AND CEMENTING PROGRAM:

The proposed casing and cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth shall be based on all relevant factors, including; presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. All indications of usable water shall be reported.

Casing design shall assume formation pressure gradients of 0.44 to 0.50 psi per foot for exploratory wells (lacking better data).

Casing design shall assume fracture gradients from 0.70 to 1.00 psi per foot for exploratory wells (lacking better data).

Casing collars shall have a minimum clearance of 0.422 inches of all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.

All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

The proposed casing program will be as follows:

Purpose	Depth MD	Hole Size	O.D.	Weight #/ft.	Grade	Type
Conductor	0-80'	26"	20"	94	J55	ST&C
Surface	0-500'	17-1/2"	13-3/8"	54.5	J55	ST&C
Intermediate	0-6382	12-1/4"	9-5/8"	43.5	HCP110	LT&C
Drilling Liner	6182-8021	8-1/2"	7"	23	N-80	LT&C
Production	6082-13247	6-1/8"	4-1/2"	11.6	HCP110	LT&C

Casing Design Subject to revision based on geologic conditions encountered.

Proposed Centralizer Program:

Conductor: No centralization

Surface: One centralizer every other joint beginning with shoe joint. 6 total centralizers

Intermediate: One centralizer every other joint beginning with shoe joint up to 5100' MD, every 3rd joint from 5100' MD to surface. 75 total centralizers

Drilling Liner: One centralizer every joint. 46 total centralizers (solid body turbolizer style)

Production Liner: One centralizer every joint. 180 total centralizers (solid body turbolizer style)

The cement program will be as follows:

Conductor Cement Program:

0-80 ft depth 20" Conductor Cement with 120 cuft or105 sacks of Type I cement or Neat cement with Yield of 1.14 cuft./ft. and weight of slurry is 14.8 ppg which is 100 % excess of hole capacity volume.

Surface Cement Program:

Fluid Instructions
Fluid 1: Water Based Spacer
Water

Fluid Density:	8.34 lbm/gal
Fluid Volume:	10 bbl

Fluid 2: Lead Cement
VARICEM (TM) CEMENT
0.25 lbm/sk Poly-E-Flake (Lost Circulation Additive)
1 % Cal-Seal 60 (Accelerator)

Fluid Weight	12.70 lbm/gal
Slurry Yield:	1.78 ft^3/sk
Total Mixing Fluid:	9.13 Gal/sk
Top of Fluid:	0 ft
Calculated Fill:	334 ft
Volume:	80.11 bbl (450 ft^3)
Calculated Sacks:	252.98 sks
Proposed Sacks:	255 sks

Fluid 3: Tail Cement
Premium Plus - Type III
94 lbm/sk Premium Plus - Type III (Cement-non-api)
0.25 lbm/sk Poly-E-Flake (Lost Circulation Additive)
0.3 % Versaset (Thixotropic Additive)
2 % Econolite (Light Weight Additive)
6 % Salt (Salt)

Fluid Weight	13.50 lbm/gal
Slurry Yield:	1.77 ft^3/sk
Total Mixing Fluid:	9.26 Gal/sk
Top of Fluid:	334 ft
Calculated Fill:	166 ft
Volume:	47.15 bbl (265 ft^3)
Calculated Sacks:	150 sks
Proposed Sacks:	150 sks

Fluid 4: Water Based Spacer
Water Displacement

Fluid Density:	8.34 lbm/gal

TOTAL SURFACE VOLUME: 715 ft^3
SUFFICIENT VOLUME IN SLURRY TO CIRCULATE CEMENT TO SURFACE

Intermediate Casing Cement Program:

Fluid Instructions
Fluid 1: Water Spacer
Water

Fluid Density:	8.40 lbm/gal
Fluid Volume:	20 bbl

Fluid 2: Reactive Spacer
SUPER FLUSH 101

Fluid Density:	10 lbm/gal
Fluid Volume:	20 bbl

Fluid 3: Water Spacer

Water	Fluid Density:	8.40 lbm/gal
	Fluid Volume:	20 bbl
Fluid 4: Lead Cement		
FILLSEAL (TM) SYSTEM	Fluid Weight	13 lbm/gal
0.2 % Versaset (Thixotropic Additive)	Slurry Yield:	1.43 ft^3/sk
0.1 % HALAD-766 (Low Fluid Loss Control)	Total Mixing Fluid:	6.76 Gal/sk
1 % ZoneSeal 4000 (Foamer)	Top of Fluid:	0 ft
	Calculated Fill:	5000 ft
	Volume:	484.12 bbl(2178 ft^3)
	Calculated Sacks:	1278.83 sks
	Proposed Sacks:	1280 sks
Fluid 5: Lead Cement		
FILLSEAL (TM) SYSTEM	Fluid Weight	13 lbm/gal
0.2 % Versaset (Thixotropic Additive)	Slurry Yield:	1.43 ft^3/sk
0.1 % HALAD-766 (Low Fluid Loss Control)	Total Mixing Fluid:	6.76 Gal/sk
1 % ZoneSeal 4000 (Foamer)	Top of Fluid:	5000 ft
	Calculated Fill:	1000 ft
	Volume:	100.41 bbl (564 ft^3)
	Calculated Sacks:	273.98 sks
	Proposed Sacks:	275 sks
Fluid 6: Tail Cement		
HALCEM (TM) SYSTEM	Fluid Weight	13 lbm/gal
0.2 % Versaset (Thixotropic Additive)	Slurry Yield:	1.43 ft^3/sk
0.1 % HALAD-766 (Low Fluid Loss Control)	Total Mixing Fluid:	6.76 Gal/sk
1 % ZoneSeal 4000 (Foamer)	Top of Fluid:	6000 ft
	Calculated Fill:	506 ft
	Volume:	53.78 bbl (302 ft^3)
	Calculated Sacks:	211.02 sks
	Proposed Sacks:	215 sks
Fluid 7: Oil Based Mud		
OBM Displacement	Fluid Density:	9 lbm/gal
	Fluid Volume:	481.46 bbl

TOTAL INTERMEDIATE VOLUME: 3,044 ft^3
SUFFICIENT VOLUME IN SLURRY TO CIRCULATE CEMENT TO SURFACE

Drilling Liner Cement Program:

Fluid 1: Water Based Spacer		
MUD FLUSH III	Fluid Density:	8.40 lbm/gal
0.1 gal/bbl SEM-7 (Emulsifier)	Fluid Volume:	20 bbl
0.1 gal/bbl Musol(R) A (Mutual Solvent)		

Fluid 2: Primary Cement
HALCEM (TM) SYSTEM
0.4 % Halad(R)-9 (Low Fluid Loss Control)
0.4 % Halad(R)-413 (Low Fluid Loss Control)
2.5 lbm/sk Kol-Seal (Lost Circulation Additive)
0.3 % D-AIR 3000 (Defoamer)
0.05 % HR-5 (Retarder)

Fluid Weight	13.50 lbm/gal
Slurry Yield:	1.30 ft^3/sk
Total Mixing Fluid:	5.52 Gal/sk
Top of Fluid:	5200 ft
Calculated Fill:	2647 ft
Volume:	81.61 bbl (458 ft^3)
Calculated Sacks:	352.72 sks
Proposed Sacks:	355 sks

Fluid 3: Oil Based Mud
Displacement

Fluid Density:	9 lbm/gal
Fluid Volume:	174.06 bbl

TOTAL DRILLING LINER VOLUME: 458 ft^3

SUFFICIENT VOLUME IN SLURRY TO CIRCULATE CEMENT ABOVE TOP OF LINER

Lateral Production Casing Cement Program:

Fluid 1: Water Based Spacer
MUD FLUSH III
0.1 gal/bbl SEM-7 (Emulsifier)
0.1 gal/bbl Musol(R) A (Mutual Solvent)

Fluid Density:	8.40 lbm/gal
Fluid Volume:	20 bbl

Fluid 2: Primary Cement
HALCEM (TM) SYSTEM
0.4 % Halad(R)-9 (Low Fluid Loss Control)
0.4 % Halad(R)-413 (Low Fluid Loss Control)
2.5 lbm/sk Kol-Seal (Lost Circulation Additive)
0.3 % D-AIR 3000 (Defoamer)
0.05 % HR-5 (Retarder)

Fluid Weight	13.50 lbm/gal
Slurry Yield:	1.30 ft^3/sk
Total Mixing Fluid:	5.52 Gal/sk
Top of Fluid:	6050 ft
Calculated Fill:	2165 ft
Volume:	74.95 bbl (421 ft^3)
Calculated Sacks:	323.95 sks
Proposed Sacks:	325 sks

Fluid 3: Oil Based Mud
Displacement

Fluid Density:	9 lbm/gal
Fluid Volume:	163.90 bbl

TOTAL PRODUCTION LINER VOLUME: 421 ft^3

SUFFICIENT VOLUME IN SLURRY TO CIRCULATE CEMENT ABOVE TOP OF LINER

Note: Actual volumes to be calculated as determined by conditions on site. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above, or equivalent slurries depending on service provider selected. Cement yield may change depending on slurries selected, but cement volume in cubic feet will be based on the above excess numbers.

After cementing but before commencing any test, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe. WOC time shall be recorded in the driller's log.

The following reports shall be filed with the Area manager within 30 days after the work is completed.

Progress reports, Form 3160-5 "Sundry notices and Reports on Wells", must include complete information concerning: Setting of each string of casing, showing the size, grade, weight of casing set, hole size, setting depth, amounts and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date work was done. Show the spud date on the first reports submitted.

5. MUD PROGRAM:

The proposed circulating mediums to be employed in drilling are as follows:

Mud Type:Fresh Water / NewGel / NewPHPA Sweeps/ LSND:

Hole Size (in)	TVD (ft)	Mud Wt.	Visc.	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	Total Solids (%)
26"	0-80'	8.3 - 9.2 ppg	38-100	4-28	4-28	6-30

Hole Size (in)	TVD (ft)	Mud Type	Mud Wt.	Visc.	Yield Point ($lb/100ft^2$)	API Fluid Loss (ml/30min)	pH Range	Total Solids (%)
17-1/2"	0-500'	Fresh Water	8.4-8.6	60-70	25-35	NC	8.5-9.5	<4
12-1/4"	500-6259'	Fresh Water LSND	8.5 – 8.8 w/ air mist	40-50	10-12	8-10	8.5-9.5	<4
8-1/2"	6259-7333	Oil Based	8.6-9.0	15-25	8-15	<15	NA	<4
6-1/8"	7333-7237	Oil Based	8.6-9.0	15-25	8-15	<10	NA	<4

There will be sufficient mud on location to control a blowout should one occur.

Mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

The mud systems from surface to intermediate point at 6450' TVD will be a fresh water base LSND mud system.

The mud systems from the intermediate casing point of 6450'TVD thru the curve and lateral section will be an Oil Base Mud system.

A closed loop system will be used to recover drilling fluid and dry cuttings on all hole intervals. Thick black plastic will be laid down under the rig mats and other equipment. For spill control and containment, and 1-2 ft tall dirt berm will be built around all drilling machinery. The cellar will be used as a sump and all fluid will be pumped out of the cellar daily back into a slop tank. From there, fluids will be treated and usable fluid returned to drilling fluid system and waste disposed of properly.

Mud monitoring equipment to be used is as follows:

Periodic visual monitoring of the mud system will be done to determine volume changes.

The concentration of hazardous substances in the reserve pit at the time of pit backfilling must not exceed the standards set forth in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

All oil and gas drilling related CERCLA hazardous wastes/substances removed from a location and not reused at another drilling location must be disposed of at an EPA approved hazardous waste facility.

6. TESTING, LOGGING & CORING:

Mud Loggers will be on the well from 500 ft MD to TD (13,248' MD).

No drill stem tests are anticipated.

The logging program will consist of a GR/Triple Combo from 500 ft MD (surface shoe of 13 3/8") to 6382 ft MD (shoe point of 9-5/8")and also run a GR/Triple Combo from the 8021'MD (shoe of the 7") to 6,382'MD (shoe of the 9-5/8") and log the lateral section with a GR/HMI /Resistivity Log w/ Caliper from Total Depth MD to 7" casing shoe at 8021' MD (heel) to 13,248' MD(toe of the lateral).

No coring is anticipated.

Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted not later then 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analysis, well-test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the authorized officer (AO).

7. ABNORMAL PRESSURES AND HYDROGEN SULFIDE:

The expected bottom hole pressure is +/- 3400 psi based on a 9.0 ppg at 7300' TVD. No abnormal pressures or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H2S is encountered the guidelines in Onshore Order No. 6 will be complied with.

8. OTHER INFORMATION AND NOTIFICATION REQUIREMENTS:

Drilling is planned to commence on **April 1, 2010.** It is anticipated that completion operations will begin within 30- 40 days after the well has been drilled pending on frac treatment schedule with various pump service companies.

It is anticipated that the drilling of this well will take **approximately 45 days.**

The proposed completion program is as follows: zones with porosity and permeability as determined by open hole logging will be perforated and stimulated with 2% KCl slick water and Ottawa sand. Number of stages will be determined after examining logs. Stages will be treated using the "perf and plug" method.

Date

Brian Alleman
Drilling Engineer I

Well Name: Rosa Unit 635C - Olive
Surface Location: Rosa Unit 635 Pad
North American Datum 1983 , US State Plane 1983 , New Mexico Western Zone
Ground Elevation: 6418.0

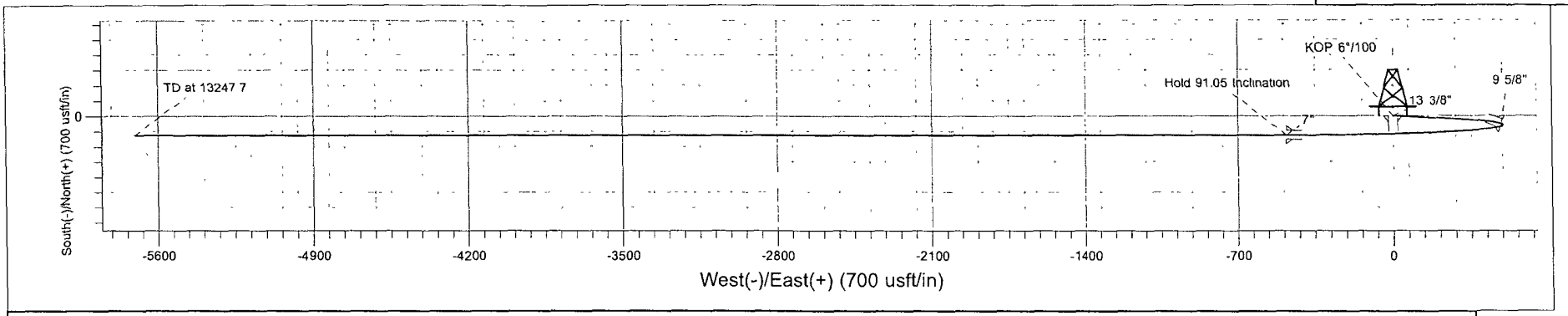
+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.0	0.0	2142553.59	2857088.16	36° 53' 13.581 N	107° 22' 30.475 W	RU 635C

KELLY BUSHING @ 6438.0usft (Rig 232 (20' KB) kjs)

Project: SJ 21-31N-05W
Site: Rosa Unit 635 Pad
Well: Rosa Unit 635C - Olive
Plan 6° DLS 30Dec09 kjs

Azimuths to True North
Magnetic North: 9.92°

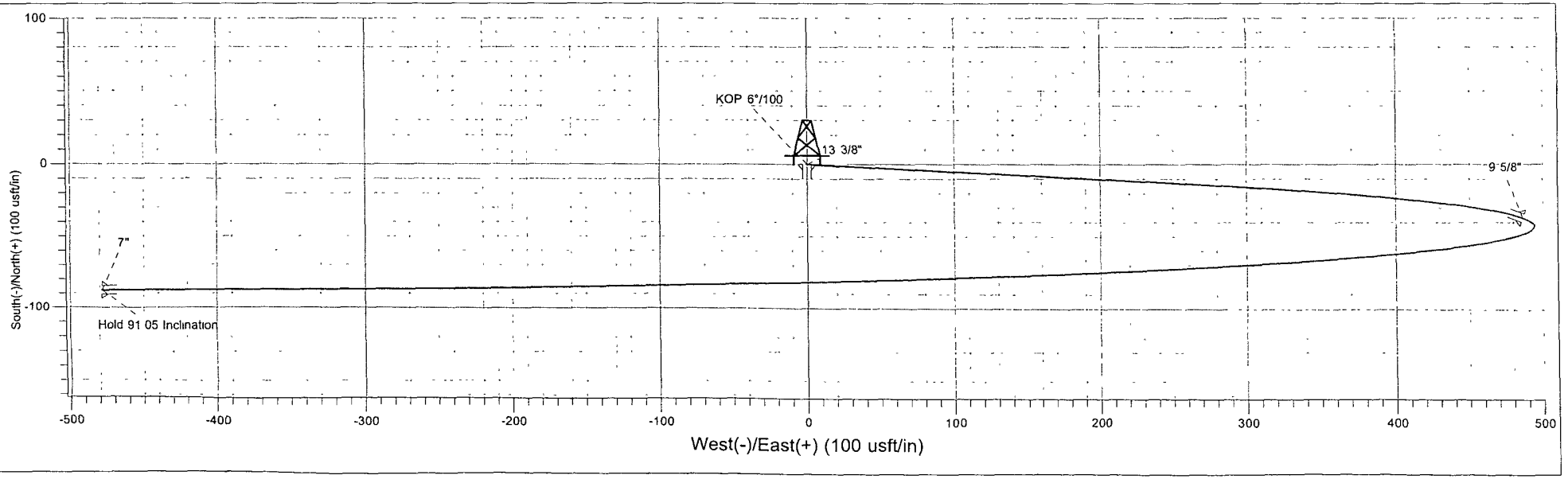
Magnetic Field
Strength: 51051.3snT
Dip Angle: 63.71°
Date: 12/9/2009
Model: IGRF2005-10



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
TD / PBHL 635C	7237.0	-86 7	-5703.9	2142439.54	2851385.05	36° 53' 12.718 N	107° 23' 40.686 W	Point
Entry Point 635C	7333.0	-87.6	-478.1	2142463.71	2856610.47	36° 53' 12.715 N	107° 22' 36.360 W	Point

Surface Location:
1890 FNL 460 FEL
Sec 21 T31N R5W
NMPM



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Project SJ 21-31N-05W
Site Rosa Unit 635 Pad
Well Rosa Unit 635C - Olive
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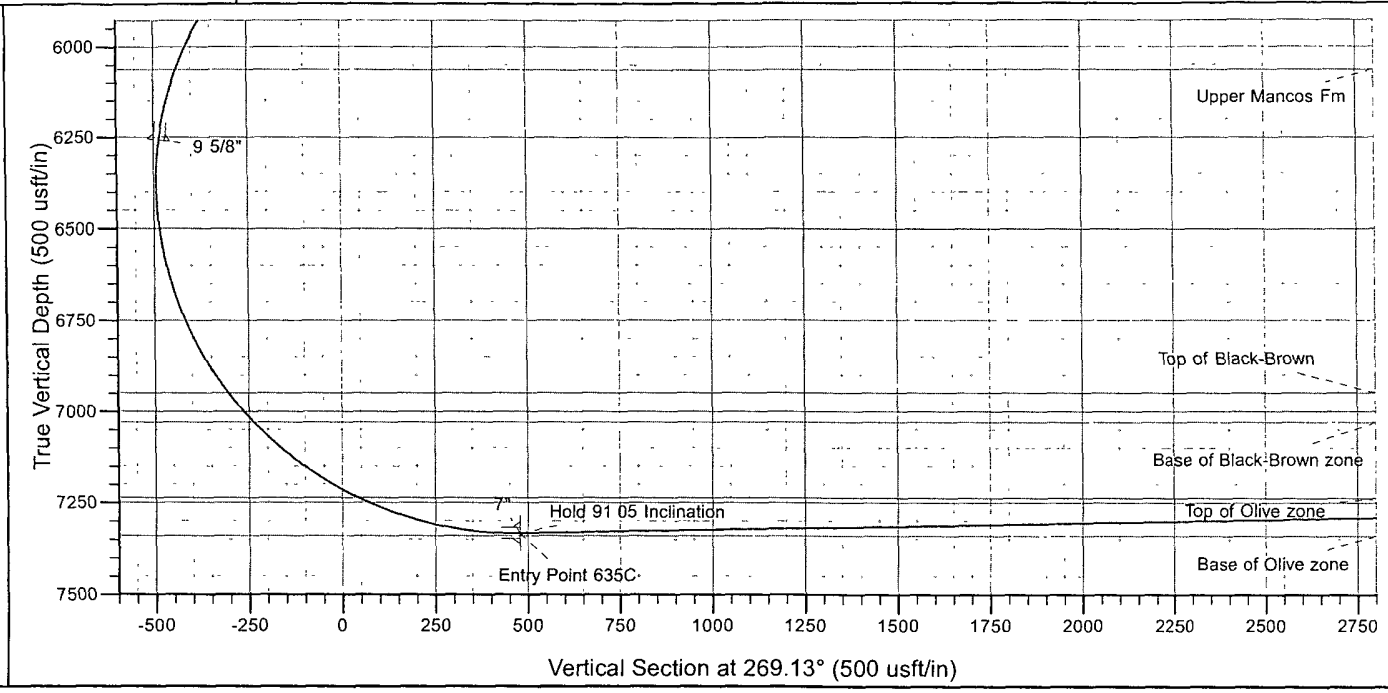
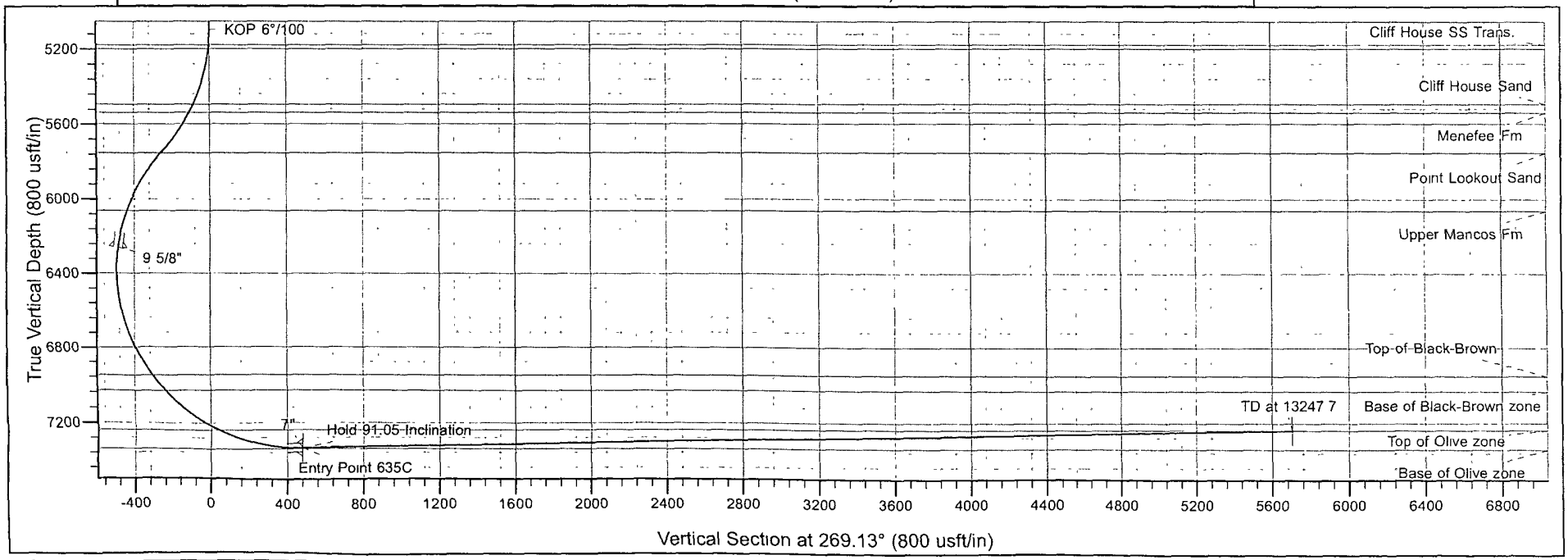


Surface Location
1890 FNL 460 FEL
Sec 21 T31N R5W
NMPM



Database:	Compass R5000 WIN AUTH	**Local Co-ordinate Reference:**	Well Rosa Unit 635C - Olive - Slot RU 635C
Company:	SAN JUAN BASIN	**TVD Reference:**	KELLY BUSHING @ 6438.0usft (Rig 232 (20' KB) kjs)
Project:	SJ 21-31N-05W	**MD Reference:**	KELLY BUSHING @ 6438.0usft (Rig 232 (20' KB) kjs)
Site:	Rosa Unit 635 Pad	**North Reference:**	True
Well:	Rosa Unit 635C - Olive	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Rosa Unit 635C - Olive		
Design:	Plan 6° DLS 30Dec09 kjs		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,548 0	2,548.0	Ojo Alamo			
2,663 0	2,663.0	Kirkland			
3,068.0	3,068 0	Fruitland Coal top			
3,288.0	3,288 0	Pictured Cliffs Sand			
3,578 0	3,578.0	Lewis Shale			
4,253.0	4,253 0	Huerfanito Ben.			
5,178.1	5,178.0	Cliff House SS Trans.			
5,505.2	5,493.0	Cliff House Sand			
5,555.3	5,538.0	Menefee Fm			
5,819.5	5,753.0	Point Lookout Sand			
6,180.8	6,063.0	Upper Mancos Fm			
7,114.7	6,949.0	Top of Black-Brown			
7,220.4	7,030 0	Base of Black-Brown zone			
7,571.0	7,237.0	Top of Olive zone			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,098.0	5,098 0	0 0	0 0	KOP 6°/100
8,021 0	7,333.0	-87.6	-478 2	Hold 91 05 Inclination
13,247.6	7,237.0	-86.7	-5,703.9	TD at 13247.7